Appendix A

Design Features and Monitoring for North Zone Roadside Salvage Alternative 2

Project Design Criteria

The project proposal includes the following criteria that are designed to restrict or completely eliminate activities from the following areas or circumstances:

Heritage

Prior to implementing any salvage or road maintenance vegetation clearing activities, heritage site surveys will be conducted and protection measures will be implemented as directed by an archeologist. Many road segments in the project area have already been surveyed and either cleared for salvage and road maintenance activities (i.e. no sites were found) or have protection measures specifically described in the project heritage report, such as avoidance or buffering (Project File). Some areas remain to be progressively surveyed as the project is being implemented.

Estimated Effectiveness – High. Contract provisions for protection of cultural resources are utilized in all contracts and have been effective in protecting cultural resources. (2000 Forest Plan Monitoring Report, Summary of Findings, page 2).

Hydrology

1. Follow all project-specific Best Management Practices (BMP) listed in Appendix A of the Environmental Analysis (EA) document.
2. Within all Inland Native Fish Strategy (INFS) buffer zones, activities will be restricted to the road surface and within the normal cut/fill clearing limits. The buffers are as follows: 300 feet slope distance or a distance equal to the height of two site-potential trees (whichever is greatest) around all fish-bearing streams; 150 feet slope distance, or a distance equal to the height of one site-potential tree (whichever is greatest) around all permanently flowing non-fish bearing streams; 150 feet slope distance for ponds, lakes, reservoirs, and wetlands greater than 1 acre; 100 feet slope distance for seasonally flowing or intermittent streams in a priority watershed; and 75 feet slope distance for all intermittent streams not in a priority watershed. No salvage operations or hazard tree removals beyond the clearing limits will occur if located within these buffer zones. If hazard trees must be cut in these areas for public safety, they would be left on the ground.

   Estimated Effectiveness – Moderate to High. Research has evaluated the effectiveness of BMPs (Seyedbahgeri 1996[1], USDA Forest Service Monitoring Reports 2002 and 2004). The researchers found that properly implemented BMPs are moderately to highly effective at preventing resource damages.

[1] A complete list of references cited can be found in the individual resource reports or the project file

Fisheries

1. Follow the Standard Width Definitions for Interim RHCAs as described in both Appendix A of the Fisheries Report, and design criteria number 2 for Hydrology.

2. Incorporate all mitigation measures and standards and guidelines listed in Appendix F of the IPNF Road Maintenance Programmatic Biological Assessment. The IPNF Programmatic BA incorporates several mitigation measures to protect resources. These mitigation measures are typically referred to as "design criteria" in NEPA documents. Despite this inconsistency, the North Zone Roadside Salvage EA continues to use the term mitigation to avoid confusion.

Estimated Effectiveness – High. No commercial harvest will occur within the RHCAs.

Wildlife

Woodland Caribou – No salvage or maintenance activities will take place during the early winter season (October 16 – January 18) along roads within CMUs 2 and 3 of the Caribou Recovery Area. This includes FSR 2454/2455 (Saddle Pass), FSR 282 (Shorty Pass), FSR 281 above the FSR 655 junction (Upper Smith Creek) and FSR 2446 (West Fork Smith).

Estimated Effectiveness - High. Rominger and Oldemeyer (1989) reported that arboreal lichens in recently windthrown trees appeared to be important forage for caribou during early winter. This condition eliminates any potential conflict where project activities and caribou both have a reasonable possibility of occurring at the same time, since foraging on down trees is less important to the species during other seasons and forage value of these areas deteriorates rapidly once trees are on the ground. This provision would be built into contracts and implemented by the sale administrator.

Grizzly Bear – All project activities within BMUs or identified BORZ areas will take place outside of the grizzly bear spring season (April 1 – June 15).

Estimated Effectiveness - High. Since spring is the most sensitive time period for grizzly bears, limiting operations during this season would greatly reduce potential effects. This provision would be built into contracts and implemented by the sale administrator.

Grizzly Bear – Maintenance along FSR 408 on the BFRD between Clifty Creek and the Dobson Creek Tr. #143 trailhead (approximately 0.8 miles) will be limited to clearing on cut and fill slopes only, and basic maintenance of drainage structures.

Estimated Effectiveness – Moderate to High. This approach is designed to retain the road in a drivable condition, but at a "primitive" maintenance level. This arrangement preserves the spirit of the agreement that was reached during the Katka Peak EIS analysis.

Canada Lynx – No project activities will be allowed within LAUs during the lynx denning season (April 15 – July 1).

Estimated Effectiveness - High. With the exception of over-the-snow winter recreation and developed winter recreation areas, human disturbance has not been identified as a risk factor for lynx. However, it has been suggested that disturbance in denning habitat may have adverse effects if lynx are forced to move kittens, potentially increasing the mortality risk for kittens. By eliminating potential project-related disturbance during the denning season, this potential mortality risk is minimized. This provision will be built into contracts and implemented by the sale administrator.

Canada Lynx – If any salvage opportunities are identified in lynx habitat along FSR 293, a North Zone Wildlife Biologist will check the immediate area to assure that potential denning structures will remain after implementation.

Estimated Effectiveness - High. The portion of FSR 293 within lynx habitat is not expected to offer salvage opportunities during the life of this project due to the relatively young age of surrounding stands (sapling). In the unlikely event that any of the stands do present salvage opportunities, the activity will be cleared by a Biologist before any marking takes place. This will preserve potential denning habitat in this portion of the Pack River LAU.

Goshawk Nest Site Protection – Mechanical operations and related activities will be suspended within ½ mile of active nest areas from April 15 to August 15 to promote nesting success and provide forage opportunities for adults and fledgling goshawks during the fledgling dependency period. Activity restrictions will be removed after June 30 if a North Zone Wildlife Biologist determines the nest site is inactive or unsuccessful (Maj 1996).

Estimated Effectiveness - Moderate to High. District marking and layout crews have been reliable in reporting new territories and alternate nests of existing territories in the vicinity of activity areas in past sales (Meadow Creek, Feist Creek, Hall Mountain and Snyder Creek territories). Seasonal restrictions are likely to minimize disturbance to active nests, particularly if ground-based systems are being used outside the ½ mile buffer.

Gray Wolf – Any gray wolf den or rendezvous sites identified in or adjacent to proposed activity areas will be spatially and/or temporally buffered as appropriate. No project activities (excluding maintenance and hauling on year-round open road systems) will be allowed within one (1) mile of occupied sites, from April 1-July 1 for den sites and from July 1-August 15 for rendezvous sites. Upon review by the Forest Level 1 team, these distances could decrease based on topographical characteristics at each site.

Estimated Effectiveness – High. The US Fish and Wildlife Service has determined that "there is little, if any, need for land-use restrictions to protect wolves in most situations, with the possible exception of temporary restrictions around active den sites on federally managed lands," and that restricting activity around sensitive sites during the denning period effectively limits potential disturbance to wolf pups (USDI 2003).

Other Threatened, Endangered, and Sensitive (TES) Wildlife Species Management – If any TES species is located during project layout or implementation, timber harvest and associated activities will be altered as necessary, so that proper protection measures are taken. Timber sale contract clause B(T)6.25, Protection of Threatened, Endangered and Sensitive Species, should be included in any timber sale contract.

Estimated Effectiveness – High. Contract provisions for protection of TES habitats and locations are utilized in all contracts and have been effective in protecting these resources (See Forest Plan Monitoring and Evaluation reports).

Fire and Fuels

1. Excess activity created surface fuels (primarily the limbs and tops of cut trees) will either be removed from the site through utilization or piled and burned.
2. Jackpot pile heavy concentrations of already downed woody fuels (not yet incorporated into the soil) to break-up continuity. This will slow fire spread in the case of a fire start, as well as diminish an otherwise easy ignition source.

3. Consider utilizing hand-piling to minimize large concentrations of heavy down woody fuels.

Estimated Effectiveness – High – Boundary and Bonner Counties are in Airshed 11 of the Montana/Idaho Airshed Group – the coordinated operations of this group being critical in accomplishing land management objectives while minimizing cumulative impacts of smoke from prescribed fire activities conducted by its members. The Bonners Ferry, Sandpoint and Priest Lake Ranger Districts strictly comply with the procedures coordinated by the Airshed Group.

Soils

1. Salvage logging - Cutting equipment will remain on the existing road surface. Winching either tops or butts to lead is suitable for small timber but when large timber is winched to the road it may dig into the ground. Directional felling would help to reduce disturbance levels.

2. Landings - All existing landings and turnouts will be used before new roadside clearings are established. Log landings will be situated alongside the road that accesses the sites and be located on terrain where soil excavation will not be necessary, and approved in advance by the sale administrator.

3. There will be no equipment on the high banks above the cut slopes of roads.

4. Pile burning - To minimize soil disturbance from burning, piles will be small (i.e. about 9 feet wide by 6 feet tall) and burned when soil moistures are at least 25%.

5. Within the salvage zone, woody material that is rotting, decomposing, or would disturb the forest floor by being lifted up will be left in place. This includes blow down that is less than 50% sound. Coarse woody debris will be added by lopping limbs and tops and leaving them scattered within the salvage areas.

6. Nutrient protection - when feasible, the latest soil nutrient management recommendations from the Intermountain Forest and Tree Nutrient Cooperative (IFTNC) and Rocky Mountain Research Station (RMRS) will be applied where roadside salvage and hazard tree removals occur.

Estimated Effectiveness – Moderate to High. Past Forest Plan monitoring conducted by the soil scientist of these design criteria as used on other timber sale areas and prescribed fires have shown the design criteria moderately to highly effective in minimizing soil disturbance, compaction, and in maintaining coarse woody debris. Contract provisions for protection of soil resources are utilized in all contracts and have been effective in protecting soil resources (Combined 2007, 2008 and 2009 Forest Plan Monitoring Report, Summary of Findings, pages 105-121).

Rare Plants

1. All documented rare plant occurrences will be evaluated by the project botanist and where warranted, mitigation measures will be implemented to protect population viability. (Some occurrences of rare plants found on or immediately adjacent to open system roads may not be buffered, and buffering will occur on a case-by-case basis when it is determined to be necessary to maintain population viability of a species).

2. Occurrences of stalked moonwort (*Botrychium pedunculosum*), even where it occurs within a road prism, will be buffered from all project-related activities (even road maintenance), except where to do so would jeopardize public safety. These protections are necessary to

maintain genetic breeding stock adjacent to suitable habitat for an otherwise critically-imperiled species.

3. Microsites of highly suitable rare plants habitat that occur within proposed treatment units, including seeps, springs and other seasonally or perennially wet areas, will be protected from all project activities by site-specific buffers established by a qualified botanist.

4. Where roadside salvage activities occur within wet or moist forest habitat types (particularly along FSR 659, 1094, 313, and 638), leave a minimum of one blown-down cedar tree (>12" dbh) for every tenth-mile of salvage, if available, to provide for rare plant habitat.

5. Although not required, where feasible within moist and wet forest guild habitat, road maintenance activities will be avoided between June 15 and August 30, to allow moonwort populations ample time to emerge and reproduce prior to disturbance.

6. Any changes to the proposed action that may occur during layout will be reviewed by a qualified botanist, and rare plant surveys will be conducted as necessary prior to project implementation. Newly documented occurrences will be evaluated, with specific protection measures implemented to protect population viability. Such measures could include the following:

- Dropping units from harvest activity;
- Modifying unit boundaries to provide adequate buffers around documented occurrences, as determined by a qualified botanist and based on topography, extent of contiguous suitable habitat for documented occurrences and the type of treatment proposed;
- Modifying harvest methods, fuels treatment or logging systems to protect rare plants and their habitats; and/or
- Implementing, if necessary, Timber Sale Contract provisions B6.24, Protection Measures Needed for Plants, Animals, Cultural Resources, and Cave Resources; C6.24#- Site Specific Special Protection Measures; and B8.33, Contract Suspension and Modification.

Estimated Effectiveness: Moderate to High; the above measures will assure protection of the documented occurrences of sensitive species when necessary to protect population viability (i.e. Stalked Moonwort). Although some individual sensitive species within and adjacent to open road prisms will not be buffered from project activities, each occurrence was considered as to importance for population viability of the species. Most of the highly suitable wet forest rare plant habitat will also be protected through incorporation of INFS or RHCA buffers.

Noxious Weeds

1. Noxious weed treatment will be conducted according to guidelines and priorities established in the appropriate district's noxious weed control policy: Bonners Ferry Ranger District Noxious Weed Control Project FEIS (USDA 1995), Priest Lake Ranger District Noxious Weed Control FEIS (USDA 1997), or Sandpoint Noxious Weed Control Project FEIS (USDA 1998). Methods of control may include biological, chemical, mechanical and cultural. Follow-up treatments and monitoring will be conducted as needed.

2. Any gravel or rock utilized for road reconstruction or maintenance activities associated with this project will be obtained from a State- Certified Weed Free source or a Forest Service-authorized weed treated source that is free of new weed invaders. A list of weed species considered to be potential new invaders is included in the project file.

3. Any priority weed species (as defined by the IPNF Weed Specialist) identified during road

maintenance or roadside salvage activities will be reported to the District Weed Specialist. A list of priority weed species is included in the project file.

4. Monitoring of all haul routes and service landings on NFS lands will occur during project implementation, with treatment of identified weed infestations as needed and authorized under each district's noxious weed control policy.
5. Where feasible, weed treatment of all haul routes and service landings on NFS lands will occur prior to ground disturbing activities, as authorized under each district's noxious weed control policy. If the timing of ground disturbing activities will not allow weed treatment to occur when it would be most effective, it will occur in the next treatment season following the disturbance.
6. All timber sale contracts will require cleaning of harvest and road reconstruction/ maintenance equipment prior to entry onto NFS lands.
7. If operations occur in areas infested with new noxious weed invaders (as defined by the IPNF Weed Specialist), all equipment will be cleaned prior to leaving the site.
8. All landings or other areas of disturbance (including maintenance and reconstruction of existing road cutbanks and fill slopes) will be seeded with the most current IPNF site-appropriate, certified, weed-free seed mix. Revegetation species utilized should be source-identified, site-appropriate, and genetically-adapted to the project area, when feasible. Areas that incur fuels treatment or slash burning will be evaluated by the North Zone Botanist or Forest Soil Scientist after the burn and seeded/revegetated and fertilized as necessary.
9. All mulch materials used for seed or soil stabilization will be certified weed-free.

Estimated Effectiveness- The above mitigation measures are accepted weed prevention practices developed by public land management agencies and university cooperative extension offices and promoted by weed management organizations across the nation (e.g. Sheley et al. 2002, Drlik et al. 1998, USDA 2001a). The above measures include those required in Forest Service Manual (FSM) 2080 for activities related to timber harvest and roads. They are described in FSM 2981.2- 1a and FSM 2081.2 - 6a, respectively (see project file). Also included are weed prevention practices recommended but not required (weeds report, see project file).

For new weed invaders, the estimated effectiveness of the above measures is high; the measures are expected to be very effective at preventing establishment of new invaders. According to current research (Hobbs and Humphries 1995), early detection and treatment of infestations before explosive spread occurs can significantly reduce the social cost of weed invasions.

For existing infestations that occur along road rights-of-way, estimated effectiveness is moderate; the measures are expected to be somewhat effective at reducing the spread of these into 13 previously un-infested portions of the project area. For existing infestations that have spread off the road, estimated effectiveness is low. Effectiveness of treatments on NFS lands could be even more reduced if adjacent landowners do not treat their weed infestations. Existing weeds and new invaders are also spread by wildlife, winds, water, and hikers – the mitigation measures will have no effect on these sources of weed spread.

Recreation

1. When and where activities are being implemented near recreation sites (campgrounds, popular dispersed sites and trailheads for example), recreation program personnel will be involved with contract prep personnel in order to customize treatment needs around these areas. An example of these needs may include no-salvage zones around recreation sites, hazard tree removals and special timing restrictions to minimize conflicts with the public during high use periods.
2. Winter logging along groomed snowmobile trails will be allowed on a case by case basis with possible mitigation measures. Hauling activities will not take place on weekends and holidays on roads providing campground recreation access. Appropriate signs would be placed at visible locations to caution the public about the logging and hauling activities.

   Estimated Effectiveness – High. Timber sale contract provisions have proven effective in controlling timing of operations and protecting improvements (e.g., trails, campground facilities, outbuildings, etc.). Similar design features have been successful with protecting and maintaining recreational resources when implemented on other vegetation management projects on the IPNF.

Visual Quality

1. Where feasible, leave occasional large diameter trees within the road maintenance clearing areas in order to enhance the visual effects. Deciduous trees such as cottonwood, aspen, birch and larch are preferred in order to add color contrast during the fall season. If leave tree paint is used, painting only the side of the tree facing away from the road is preferred.
2. If slash has to be piled in the roadside clearing areas, make them small and burn them as soon as possible. The pile size recommended by the soil scientist for this project is suitable for visual concerns also (refer to soils design criteria).
3. Where new landings are needed, try to locate them in roadside areas that are already somewhat open in order to minimize creating obvious new openings. Some new landings may be located where they can open up vistas of Priest Lake, Lake Pend Oreille or nearby and distance mountains also.
4. Minimize the use of boundary paint when feasible. Use of biodegradable flashers is recommended, especially for roadside clearing work. This is less important for roadside salvage boundaries that are located 100-200 feet off road shoulders.

   Estimated Effectiveness – High. Visual monitoring of past roadside salvage and road maintenance activities similar to the proposed North Zone Roadside Salvage project has shown success in maintaining VQOs when the design criteria described above are applied (see Visual Report in project file).

Project Monitoring

The following monitoring would be included as part of the proposed action:

- Monitor soil quality by visual or physical checks conducted by either District or Forest-level soil science specialists during and after implementation.
- Representative monitoring of best management practices (BMPs) would be conducted by the sale administrator and reviewed by resource specialists (Watershed Report).

- Representative monitoring of noxious weeds by district personnel to help identify any areas needing treatment and follow-up treatments.
- Representative monitoring of visual impacts by landscape architect (LA) or para-professional LA to verify Forest Plan VQOs are being achieved over the life of the project